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explode bombs in honor of the spirit. Here and there are curious vertical-sided buttes of limestone, generally too steep for ascent, — the remnants of a sedimentary deposit which seems to have once covered large areas. At the base of one of these are usually found grottos, affording interesting crystalline formations and pleistocene fossils. The country is largely covered with dense forests, patches of jungle, marshes, and a few natural clearings. The forests are nearly devoid of life: few flowers, and those nearly colorless, are found. Birds and mammals are absent, and are to be found only in the clearings, where are immense troops of wild boars, large pythons, deer, and the carnivores which prey upon them. The chief pest is the leech, of which two kinds are found. One inhabits wet places; the other, the shrubbery. The latter seem to have acute perceptions. At the least sound they are on the *qui vive*, and raise themselves on the branches, waving their bodies about, ready for attack. They are an inch to an inch and a half in length, and very slender, making their way through loosely woven fabrics or under the clothing with ease. The bite continues to bleed, and often forms angry sores which are long in healing. Travel is generally performed on elephants, if by land. Mr. Errington testifies with astonishment to the intellectual capacity of these animals, and declares that all the stories he has heard in regard to their intelligence fall below the reality. The last few years have witnessed a wonderful advance in the product of tin from this region. Under the enlightened protectorate of Great Britain, and the enactment of more favorable laws, the product has risen from two thousand tons in 1876, to over seven thousand tons of bar tin per annum in 1883. Large and well-built towns have arisen; and the future of the country is bright, and only needs the introduction of sufficient labor and suitable agricultural methods to be put on a permanently prosperous basis.

NOTES AND NEWS.

THE reports of the annual conference of librarians, which was held last summer at Lake George, extend through one hundred and seventy pages, a double number, of the *Library journal*. Amid a great deal of matter which relates simply to technical administration, and is therefore of interest to librarians only, there are several papers which will be useful to all those readers who have occasion to consult a public collection of books. Among the latter may be mentioned an account of the printing of the British museum catalogue, which is furnished by Mr. Richard Garnett of the museum.

Seventy-eight volumes, representing two hundred and ninety-five manuscript volumes of the museum, are printed already, fifty-eight of which are the letters A and B: twenty are from Virgil to Z. Extra copies of certain articles have been issued for separate sale; e.g., 'Aesop,' 'Aeschylus,' 'America,' 'Aristotle,' 'Bacon,' 'Horace,' 'Byron,' 'Swedenborg.' The great articles 'Academies' and 'Periodical literature' are nearly completed. 'Bible' is commenced, and it is hoped that 'Shakspeare,' 'Homer,' 'Liturgies,' and 'Dante' will follow at an early date. The catalogue, if completed, will be the largest catalogue in the world. Another noteworthy article, of a very different character, is that of F. B. Perkins of San Francisco, on the 'Free public library, its purposes and its abuses.' R. R. Bowker and T. H. McKee discuss the U. S. government publications and their distribution, — two instructive papers; E. M. Barton of Worcester advocates the distribution of duplicates; and W. F. Poole gives some excellent hints with respect to small library buildings. There are also several annual reports on cataloguing, college libraries, reading for the young, etc. There are no public officers in the country more co-operative and obliging than the librarians. Their desire to promote in every way the use of the collections intrusted to their charge is most commendable. They are rarely paid adequately, and are often overworked; but it is upon their skill, their enthusiasm, their learning, and their courtesy, that investigators, teachers, scholars, and writers of every class depend. The rapid increase of composition in this country is due to them in no small degree, and we predict that in the next five and twenty years there will be a corresponding growth in erudition.

— Prof. C. S. Sargent has republished in pamphlet form his excellent sketch of the career and work of Dr. Asa Gray, which was printed in the *New York Sun* on the seventy-fifth anniversary of his birth. It is the fullest and best account of his work which has been published, and full of interest for every one.

— Dr. Edward Laurens Mark has been appointed Hersey professor of anatomy in Harvard college. The place has been vacant since the death of Dr. Jeffries Wyman.

— A Winnipeg despatch to the *Chicago Tribune*, dated 17th instant, says: The explorations on the line of the proposed Hudson Bay railway from the north-east end of Lake Winnipeg to Hudson Bay, along the course of the Nelson River, have been completed; and Major Jarvis, with his party, reached Selkirk Saturday evening. The party

proceeded to Norway House in the middle of October last, and started from there in canoes, but were frozen in when only twenty-five miles on their journey, and had to abandon the canoes and use sleighs, drawn by men, as the means of transport. Great delay was experienced at first, owing to the larger lakes being still open, as well as some of the rivers, which necessitated a good deal of portaging, and cutting of roads through the woods. Oxford House was reached Nov. 9, the party having followed the usual boat route thus far; and from this point the real work of the exploration commenced. The country was thoroughly examined from the north side of Oxford Lake to the mouth of Nelson River in as nearly a direct line as possible, and the party arrived at York Factory, Nov. 30. On the return journey the line chosen as the result of the previous examination was followed and marked out. Soundings and sections were made at the crossings of the various rivers, and a careful estimate made of the amount necessary to build the line. Major Jarvis touched at Oxford House again Dec. 17, and from that point, following the north shore of Oxford Lake, returned direct to Sea River Falls, on the east branch of the Nelson River, about twenty miles below Norway House. The whole of the proposed railway from Sea River to the terminus chosen at the mouth of the Nelson River, a distance of about three hundred and ten miles, has been actually traversed on foot and thoroughly explored, and the result may be briefly summed up as follows: the line is quite practicable, the rock and earth work being light, with no heavy bridging, nor any work of an exceptional character. It may, indeed, be considered an easy line to construct, the country generally being level, and with a sand or gravel formation. The only rock met with was at the southern end of the line. The timber is not of large size, but enough was found for all immediate requirements. The Nelson River terminus is very favorably situated, being large, flat, well drained, and about ten feet above high water. Major Jarvis was accompanied by R. J. Money, civil engineer, assistant to Mr. Shelford, the well-known English engineer. Mr. Money is also perfectly satisfied with the feasibility of the scheme. The total distance walked over was upwards of a thousand miles.

—The fish commission steamer Albatross will leave Washington, as soon as the ice in the river disappears, for Norfolk, Va., where she will undergo a few necessary repairs, and thence sail for the Bahama Islands, where several months will be passed in scientific research and hydro-

graphic work. An efficient corps of naval officers and scientific experts will accompany the ship, among whom are the following: Lieut.-Commander Z. L. Tanner, commanding; Lieut. H. S. Waring; Lieut. B. O. Scott; Ensign W. S. Hogg; Ensign W. S. Benson; Surgeon J. M. Flint; Passed Assistant Engineer G. W. Baird; paymaster, C. D. Mansfield; chief naturalist, Mr. J. E. Benedict; assistant naturalists, Mr. Thomas Lee and Mr. Willard Nye.

—The gratifying success of hatching cod artificially at Wood's Holl, recently attained by the U. S. fish commission, marks a new era in fish-culture. It is now the intention of Professor Baird to attempt the acclimatization of the codfish in the Gulf of Mexico, and to this end one million of young cod will pass through Washington during the present week *en route* to Pensacola, Fla., to be placed in the Gulf of Mexico.

—Considerable interest attaches to the country around Commander Islands and Kamtchatka. Dr. Leonhard Stejneger of the Smithsonian institution visited this region in 1882-83, and also visited the territory worked over by Steller, bringing back with him many relics of that expedition, and also portions of skeletons of the extinct sea-cow, and of a vast number of birds and cetaceans. The results are interestingly told in Bulletin No. 29 of the national museum, which contains 382 pages, and eight colored lithographic plates from sketches by the author.

—Bulletin No. 30, 'Bibliography of publications relating to collection of fossil invertebrates in the national museum,' by John Belknap Marcou, will be issued in about two weeks. It contains a complete list of the writings of F. B. Meek, C. A. White, and Charles D. Walcott, and is an important contribution to this branch of science.

—The fifth annual ensilage congress met in New York, Jan. 20. There were about two hundred persons present as delegates from all parts of the United States. The opening address was delivered by Mr. Edward Atkinson of Boston, who was followed by S. C. Smith of St. Albans, Vt., Orlando B. Potter, and James B. Brown.

—The chemical division of the U. S. geological survey is conducting a series of interesting experiments with newly acquired material, under the supervision of Prof. F. W. Clarke, who is about completing an investigation of minerals from Litchfield, Me. Among the minerals there existing, a new species of the zeolite family has been found, to which Professor Clarke has given the name of hydronephelite. Messrs. Gooch and Whit-

field are engaged in an investigation of the geyser waters of the Yellowstone park; Mr. R. B. Riggs is making a series of analyses of the lepidolites of Maine, and is also analyzing an undescribed meteoric iron from the collection in the national museum; Mr. Hillebrand is engaged on minerals and rocks from Colorado; and Mr. Chatard is at work upon the associates of corundum from North Carolina, and upon the water of Mono Lake, California.

—A change has been made in the time of issuing the Smithsonian and national museum reports. Heretofore these reports covered the calendar year; but the board of regents of the Smithsonian institution have recently directed that the reports shall hereafter correspond to the fiscal year extending from July to the end of the following June inclusive. The reports from Jan. 1, 1885, to June 30, 1885, are now about ready for the printer; the report of the secretary of the Smithsonian institution to the board of regents, for the first half of 1885, being already published in pamphlet form.

—Bulletin No. 28 of the national museum, recently issued, is W. G. Binney's 'Manual of American land-shells,' which is an enlarged and revised edition of the 'Land and fresh-water shells of North America,' part i., published in 1869, to which subsequently described species are added.

—The *Botanical gazette* for January contains a heliotype engraving of Professor Gray, with a sketch of his life by Prof. C. R. Barnes. Other articles of interest in this number are by Professor Coulter, on the 'Pollen-spore of Tradescantia;' J. C. Arthur, upon a new fungus infesting the clover-leaf beetle, *Phytonomus punctatus*; a new species of *Anemone*, by Professor Gray, etc.

—The first number of the monthly *Journal of the Trenton natural history society* contains a number of short, readable articles, mostly on animal and plant habits.

—The joint commission appointed by the last congress to consider the propriety of consolidating the scientific bureaus of the government have concluded the examination of witnesses, and will shortly submit their report. While their recommendations are not definitely known, it is probable some sort of re-organization will be advised with regard to the signal service, and it may be entirely separated from the army. General Sheridan is authority for the statement that the army does not need this wing of its service, and that there is no objection to placing it under civil control.

—In *Science*, vii. p. 75, in the letter entitled 'An early prediction of the decay of the obelisk,' second line, 'St. Petersburg' should read 'Freiberg.'

—In *Science*, vii. p. 75, in the letter entitled 'Sea-level and ocean-currents,' seventh line, 'Bourdaione' should read 'Bourdaloue;' thirty-third line, 'diversity' should read 'density;' p. 76, second column, thirteenth line, '25 feel' should read '2.5 feet.'

LETTERS TO THE EDITOR.

***. Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

The festoon cloud.

IN *Science*, vii. p. 57, Prof. W. M. Davis, after giving a description of a form of cloud designated 'festoon' cloud, asks if the cloud is commonly seen in this country. I have seen the form of cloud described at least as often as a dozen times within the last six years; but, on account of not having my records at hand, I cannot give the dates.

I have seen the cloud once or twice associated with thunder-storms, but most frequently with the stratus-cloud accompanying 'areas of low pressure,' or cyclones.

The appearance presented to me is that of a cloud-stratum with an irregular base, in contrast with the level base usually seen.

The cloud then presents an appearance as if festoons were hung from it, which are sometimes somewhat circular and rounded, at other times irregular.

The explanation given that they are due to the slow descent of cloud-matter, due to the failure of an ascending current, is, no doubt, the correct one.

H. HELM CLAYTON.

Cambridge, Mass., Jan. 24.

Text-books on methods in microscopic anatomy.

The review of Dr. Whitman's 'Methods in microscopical anatomy,' in *Science* (No. 154, p. 64), seems to me not quite just, in that it implies that the author has been negligent in the performance of his task, particularly in regard to that part of it which most gives value to his work; namely, the chapter on embryological methods. In this the author has given a careful summary, the outcome of much laborious and painstaking search; so that we have for the first time a compact presentation of a large number of special methods for the handling of embryological material. It is true that it is not exhaustive, — I am grateful that it is not, — but it contains most of the best results of experience in the difficult art of preparing eggs and embryos of many kinds for microscopical examination. And since it is just in this direction of microscopical embryology that the most earnest and capable zoological energies are now turned, I feel that Dr. Whitman has done science good service by the valuable critical compilation made in the chapter referred to. Now, I wish to find fault with your reviewer because he says that "the arrangement [of this chapter] leaves the impression that it is the result of fortuitous reading rather than a methodical search for the most valuable things